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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/734,953	12/11/2000	Bruce M. Schena	IMM1P034A	6372

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EXAMINER

BRIER, JEFFERY A

ART UNIT

PAPER NUMBER

2672

DATE MAILED: 01/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/734,953

Applicant(s)

SCHENA ET AL.

Examiner

Jeffery A. Brier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 39,40,42-44,49,50,52-54 and 61-79 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

- 5) ☒ Claim(s) 63 and 66 is/are allowed.

- 6) ☒ Claim(s) 39,40,42-44,49,50,52-54,61,62,64,65 and 67-79 is/are rejected.

- 7) ☐ Claim(s) _____ is/are objected to.

- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The amendment filed on 12/09/02 has been entered and it amended claim 54 and added new claims 67-79.

Response to Arguments

2. Applicant's arguments filed 12/09/02 have been fully considered but they are not persuasive. The specification described a spring force opposing the movement of the cursor through the window border but did not describe using a spring force to oppose movement of the cursor into an icon. An icon and window border are different things and the forces associated with one do not suggest forces to be associate with the other.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 39, 40, 42-44, 49, 50, 52-54, 61, 62, 64, 65, 67-71, 73, 75, and 77-79 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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Claims 39, 40, 42-44, 49, 50, 52-54, 61, 62, 64, and 65:

Independent claims 42 and 52 both claim *wherein said force feedback sensation is a resistive spring force resisting motion of said cursor into said icon*. The specification at page 14 lines 11-19 describes:

In a "pressure clicking" or "click surface" embodiment, if the cursor is moved against the border of an icon and the force functionality mode is active, a force will be output resisting motion of the cursor into the icon; when the mouse moves against the force to a threshold distance, the icon is selected as if the cursor had clicked or double-clicked on the icon. Such an embodiment is described in co-pending patent application Ser. No. 08/879,296, entitled "Graphical Click Surfaces for Force Feedback Applications", by Rosenberg et al., filed Jun. 18, 1997, incorporated by reference herein. In other embodiments, other input devices besides or in addition to button 15a can control the force functionality mode.

The specification did not describe the type of force that resists motion of the cursor into the icon. On page 14 line 16 co-pending patent application 08/879,296 was incorporated by reference which is now U.S. Patent No. 6,078,308. Column 26 line 46 to column 27 line 26 of U.S. Patent No. 6,078,308 is the part of this patent which most closely supports these claims, however, they do not fully support these claims because this patent does not state wherein said force feedback sensation is a resistive spring force resisting motion of said cursor into said icon.

FIG. 8 is diagrammatic illustration showing an alternate embodiment 410 of static selection surface 400 in which the mapping between cursor 306 and the position of the user object 12 is not broken. After the initial contact between cursor 306 and surface 410, the user moves the user object 12 in a direction shown by arrow 412. The current position of the user object 12 is shown by dashed line X. The cursor

306 is also displayed at dashed line X, since the cursor 306 continues to be displayed at the position of the user object 12 in this embodiment. The surface 410, however, remains at the original position X_0 . The force F is output on the user object during this movement as described in the embodiment of FIG. 7. When the user object 12 and cursor 306 reach trigger position X_T , the button state changes (or the object 402 is selected, see below) as described above. Again, the user preferably feels a force spike or other cue on the user object 12 at the trigger position X_T to indicate the change in state.

The embodiment of FIG. 8 can be used to provide the user with visual feedback as to the actual position of the user object 12 with respect to the surface 410 and graphical object 402. This embodiment might be used where graphical object 402 is an icon or similar object in a GUI 300.

Normally, when the user selects an icon in a non-force-feedback GUI, the cursor 306 is guided over the icon at which point the user presses a physical button to select the icon or a function. The embodiment of FIG. 8 is similar to such a case, where cursor 306 is displayed over the object 402 but the user manipulates the spring force of the force feedback to select the icon instead of pressing a physical button. Such an embodiment is well suited to an object 402 having selection surfaces 410 provided on all displayed sides of the object, thus allowing a user to conveniently select the selection surface when approaching the object with the cursor from any direction.

In addition, for either of the embodiments of FIGS. 7 and 8, a static selection surface 400 or 410 may be invisible to the user and displayed, for example, a predetermined distance away from the displayed borders of the graphical object 402. For example, the force F may be output on the user object when the cursor 306 first encounters the invisible click surface. If the user object 12 continues to be moved toward the object 402, a trigger position X_T will eventually be reached, as described above, which will select the graphical object or change the state of a graphical button. The displayed border of the graphical object can be provided as a visible trigger position X_T in such an embodiment, if desired.

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Thus, applicants originally filed specification does not support independent claims 42 and 52 as well as dependent claims 39, 40, 43, 44, 49, 50, 53, 54, 61, 62, 64 and 65.

Claims 67-71:

Claim 67 claims the haptic feedback being representative of a resistive spring force opposing a movement of said cursor displayed on the graphical interface. The description described a spring force opposing the movement of the cursor through a window border but did not describe using a spring force to oppose movement of the cursor through other graphical objects such as the icon of the previous claims.

Claims 70, 73, 78, and 79:

These claims claim a speed at which the document is scrolled being proportional to a magnitude of the haptic feedback. The specification described at page 14 lines 4-8 controlling the speed of scrolling based upon the spring force at the window border and did not describe using other haptic feedback forces and/or other graphical objects to control the speed of scrolling.

Claims 75 and 77:

These claims claim the second haptic feedback is texture. The specification at page 14 lines 19-21 describes using a second button to control another force. The specification did not describe the second force as texture.

Thus, applicants originally filed specification does not support independent claim 67 as well as dependent claims 68-71, 73, 75, and 77-79.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 72, 74, and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobus, U.S. Patent No. 5,389,865, in view of Salcudean, U.S. Patent No. 5,790,108.

Jacobus teaches a force feedback user interface device that allows a user to interact with a virtual environment, column 4 line 26. Jacobus goes into great detail about how the user interacts with a virtual tactile environment, column 2 line 58 to column 3 line 14 and column 4 line 57. Jacobus does not clearly state that the virtual environment includes a graphical environment but the word virtual environment suggests graphical because a virtual environment includes visual (graphical), tactile and other senses. Jacobus teaches functionality buttons. Jacobus also does not mention cursors interacting with graphical objects or regions. Jacobus at column 7 lines 1-24 describes the functionality buttons (switches 54) as follows:

Included as an integral part of the hand grip assembly are three switches 54, a trigger 56 which works through an L-shaped level to push a Linear Rheostat or an LVDT 192, and a palm grip 58 which works through depressing a limit switch 194. The switches 54 allow the operator to select software driver programmed modes of operation such as position, velocity, or force control, perform scaling between the hand grip motion and motion of the simulation, provide selection between one or more

virtual reality force fields and/or selectively activate or deactivate particular joints of the hand controller.

The trigger grip provides a continuous change in resistive value as a function of depression or displacement, and can thus be used to actuate an end effector or other continuously controlled virtual mechanism.

The palm grip can be sensed as either pressed or not pressed, indicating whether the user has a firm grip of the handle assembly or not. Normally the software driver uses this switch to control hand controller safety functions--if it is not firmly pressed all active power to the hand controller actuators is interrupted. However, the switch can be sensed and decoded in the software driver as well.

Salcudean teaches a force feedback user interface device that allows a user to interact with a graphical user interface by moving a cursor or pointer over the displayed graphical user interface image, column 8 line 66 to column 10 line 3.

An analysis of the claims and the prior art follows:

Claim 72:

Jacobus teaches: a haptic feedback device (figures 5a-5c, manipulator 50, see column 5 lines 15-46);

outputting a position signal correlated to the movement of the haptic feedback device(column 4 lines 58-63, stick or handle 52, column 5 line 26);

outputting haptic feedback at the haptic feedback device based on a feedback signal (column 4 lines 63-68); and

modifying the output of the haptic feedback using a button coupled to the haptic feedback device (Fig. 12a, switches 54, column 7 lines 5-12).

Jacobus does not teach updating data values associated with a location of a cursor displayed on a graphical interface (lines 4-5) and the feedback signal being correlated with the data values associated with the location of the cursor corresponding to data values associated with one of a graphical objects and graphical regions displayed on the graphical interface (lines 7-9).

Salcudean teaches a force feedback user interface device that allows the user to control a displayed cursor illustrated in figure 12 (column 9 line 4 to column 10 line 3) and that gives the user haptic feedback as the cursor or pointer is moved over the graphical image.

It would have been obvious to one of ordinary skill in the art the time of applicants invention to use the haptic (force) feedback device teaching of Jacobus to control a cursor in a graphical display as taught to be old and well known by Salcudean because Jacobus suggests this by allowing a user to interact with a virtual environment at column 4 lines 25-29 of Jacobus.

Claim 74:

Jacobus teaches at least three switches 54 (see figure 12a) used to control the haptic feedback characteristics of the device.

Claim 76:

This claim is similar in scope to claim 72 and is rejected for the same reasons given for claim 72 and in addition the limitation the haptic feedback being a first haptic feedback when the button is in a first position and being a second haptic feedback when the button is in a second position does not distinguish from Jacobus since the type of

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switch being claimed is equivalent to two of switches 54 since when a first switch is depressed the system operates under a first haptic feedback and when a second switch is depressed the system will operate under a second haptic feedback. It would have been obvious to one of ordinary skill in the art the time of applicants invention to use the claimed button instead of two buttons (Jacobus) because Jacobus suggests this by allowing a user to select the type of haptic feedback with closely spaced buttons which allows the user to easily select the type of haptic feedback and a single switch would allow even easier selection.

Allowable Subject Matter

7. Claims 63 and 66 are allowed.

The prior art of record does not teach or suggest an indexing button on the force feedback interface device enabling an indexing mode. This is described in applicants specification at page 12 line 33 to page 13 line 12.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffery A. Brier whose telephone number is (703) 305-4723. The examiner can normally be reached on M-F from 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi, can be reached at (703) 305-4713).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

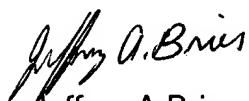
or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

A handwritten signature in black ink, appearing to read "Jeffery A. Brier". The signature is written in a cursive, flowing style.

Jeffery A Brier
Primary Examiner
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